

My Townhome Shack

Byron N6NUL

A New Ham

- **First Licensed in 2008 as KI6NUL**
- **Started out as an Appliance Operator**
 - **Didn't like it**
- **Liked Contesting and Building Things**

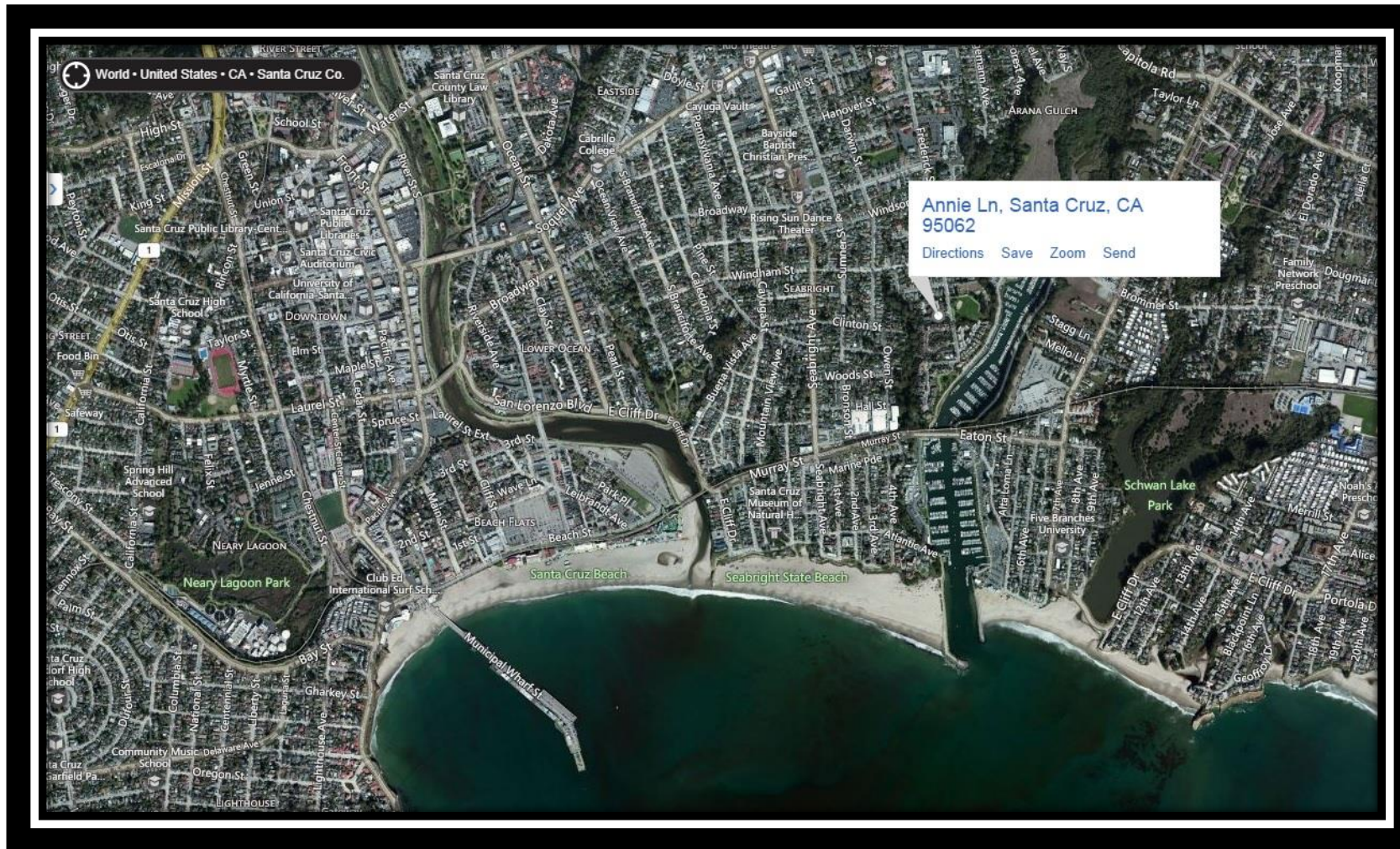
This Talk is About

- **My Quest to Claim 650 QSO's in 1 Mode of ARRL Sweepstakes**
- **From my Townhome**
- **Using Equipment I Built**

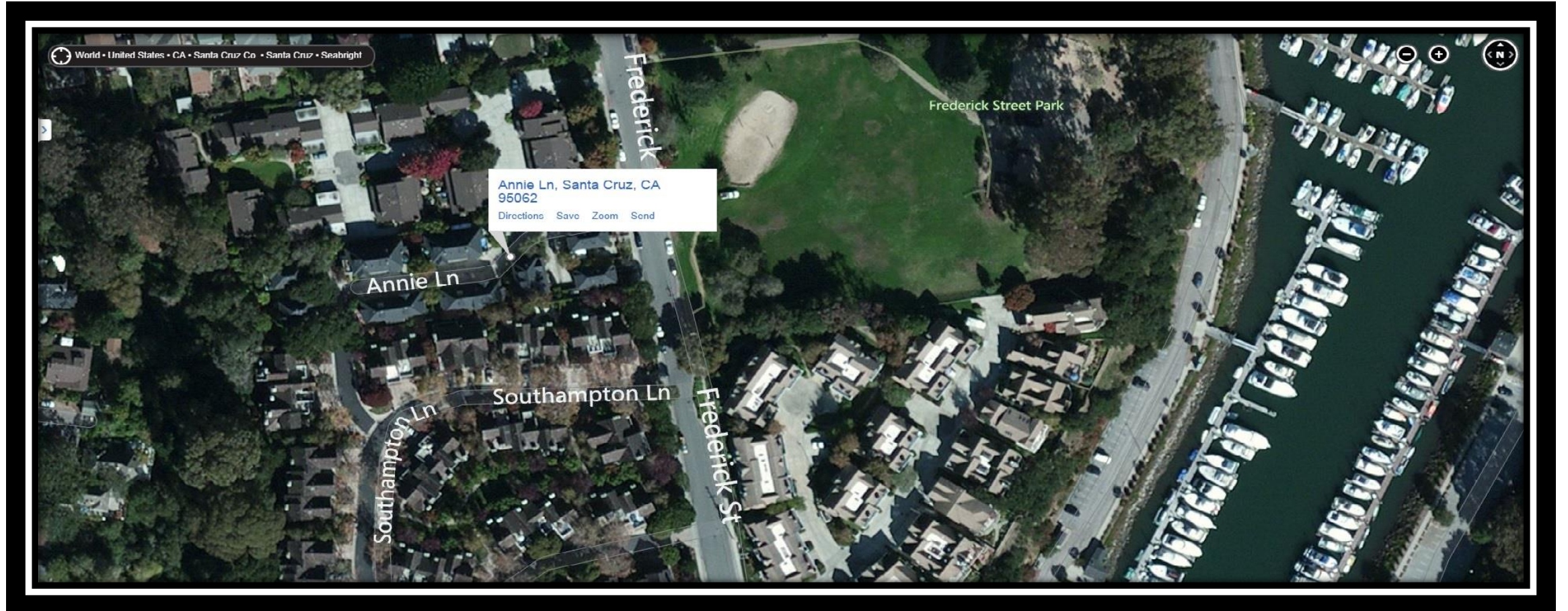
This Talk is REALLY About

- **Antennas That Didn't Work Well**
 - **Compared to my ARRL Sweepstakes Goal**
- **Handling my Neighbors**
- **Some Things I have Learned**

My Neighborhood



My HOA



My QTH

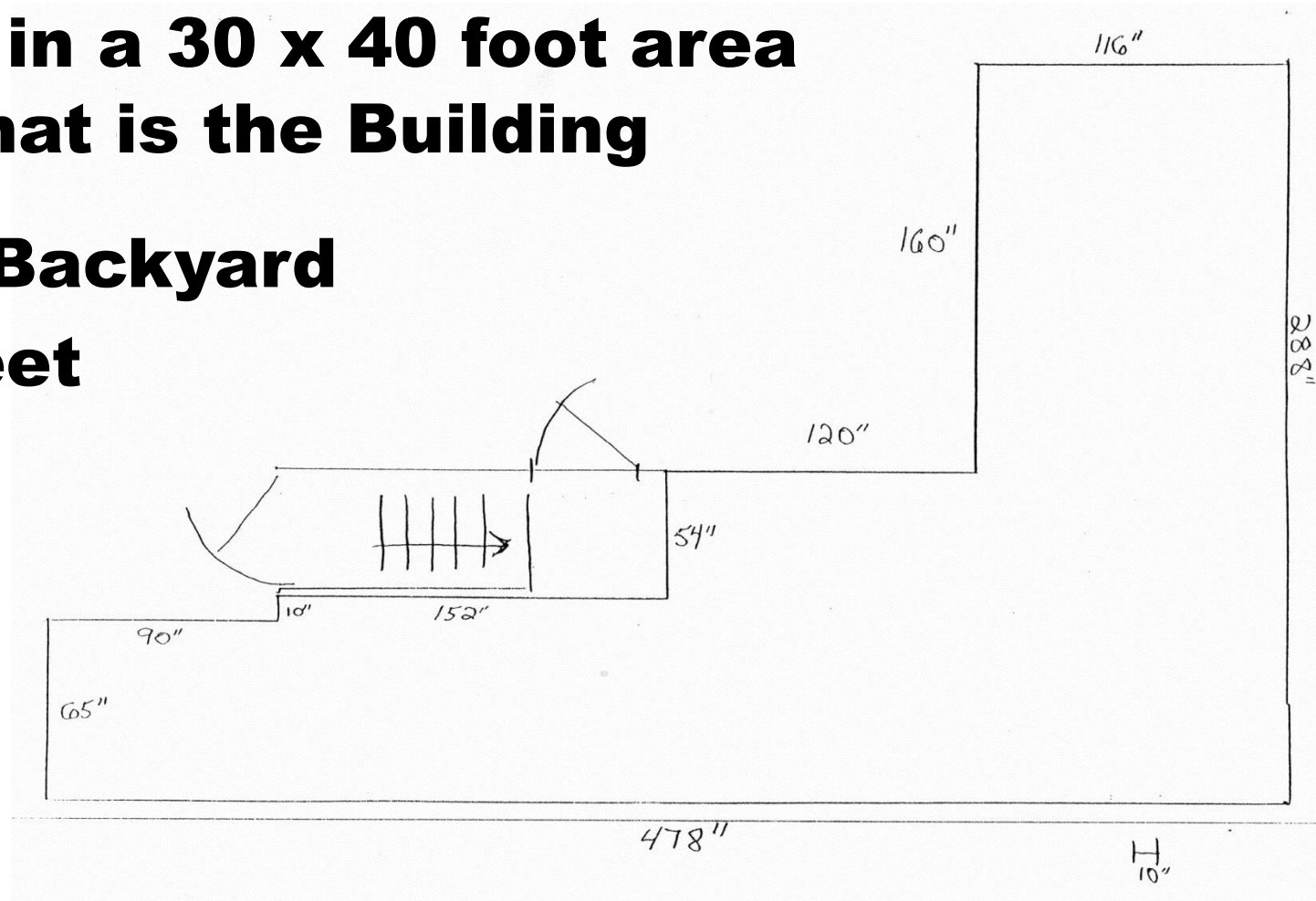


My QTH (cont.)



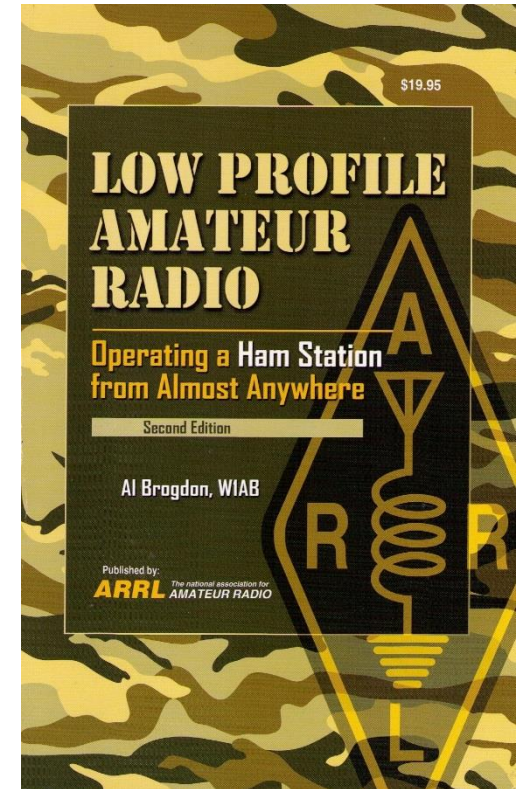
My QTH (cont.)

- My Home is in a 30 x 40 foot area
 - Most of that is the Building
- “L” Shaped Backyard
 - 40 x 24 feet



First Antenna

- **What does a New Ham Do?**
- **Read ARRL Books**
- **108' of #10**
 - **Stapled Under Gutters**
- **SGC 230 Tuner**



2009 – First Sweepstakes

- **FT-450 with a hand mic**
- **Claimed Score: 100 with 37 Sections**
- **Sold Everything but an HT Soon After**
- **Bought an Elecraft K1 Kit**
 - **Started learning Morse Code**
 - **Started Enjoying Radio More**

2010 – Second Try

- **Replaced Yellow #10 with Black #12 Low Voltage Lighting Wire**
- **Hung an Alpha DX-EE Dipole at roughly 18 feet**
- **Added a 10m Dipole at about 19 feet**
- **Installed a WX Station**

2010 – Second Try (cont.)

- **Donald AE6RF**
Let me use his Tree
- **Image is Facing East**



2010 – Second Try

- **Lessons Learned**
 - **Use Good Wire – Low voltage lighting wire is not good wire**
 - **Low Dipoles Don't Work**
 - **Neighbors Like WX Information**

2010 – Third Try

- **Low Dipoles Don't Work**
 - **Just Get Them as High as Possible**
- **20/15/10 Inverted V Dipole Over the Roof at 29 Feet**
- **80/40 Dipole Over Neighbors tree to Street with highest point 35 feet**

2010 – Third Try (cont.)

- **Hang on! A Dipole to the Street?**
 - **That goes through 3 neighbors yards**
- **I am Lucky**
 - **One my best friends rental**
 - **One rental with college kids who like beer**
 - **One a college friends' vacation home**
- **“That” Neighbor Likes WX Information**
 - **Never complained once**

2010 – Third Try (cont.)



2010 – Third Try (cont.)



2010 – Third Try Sweepstakes

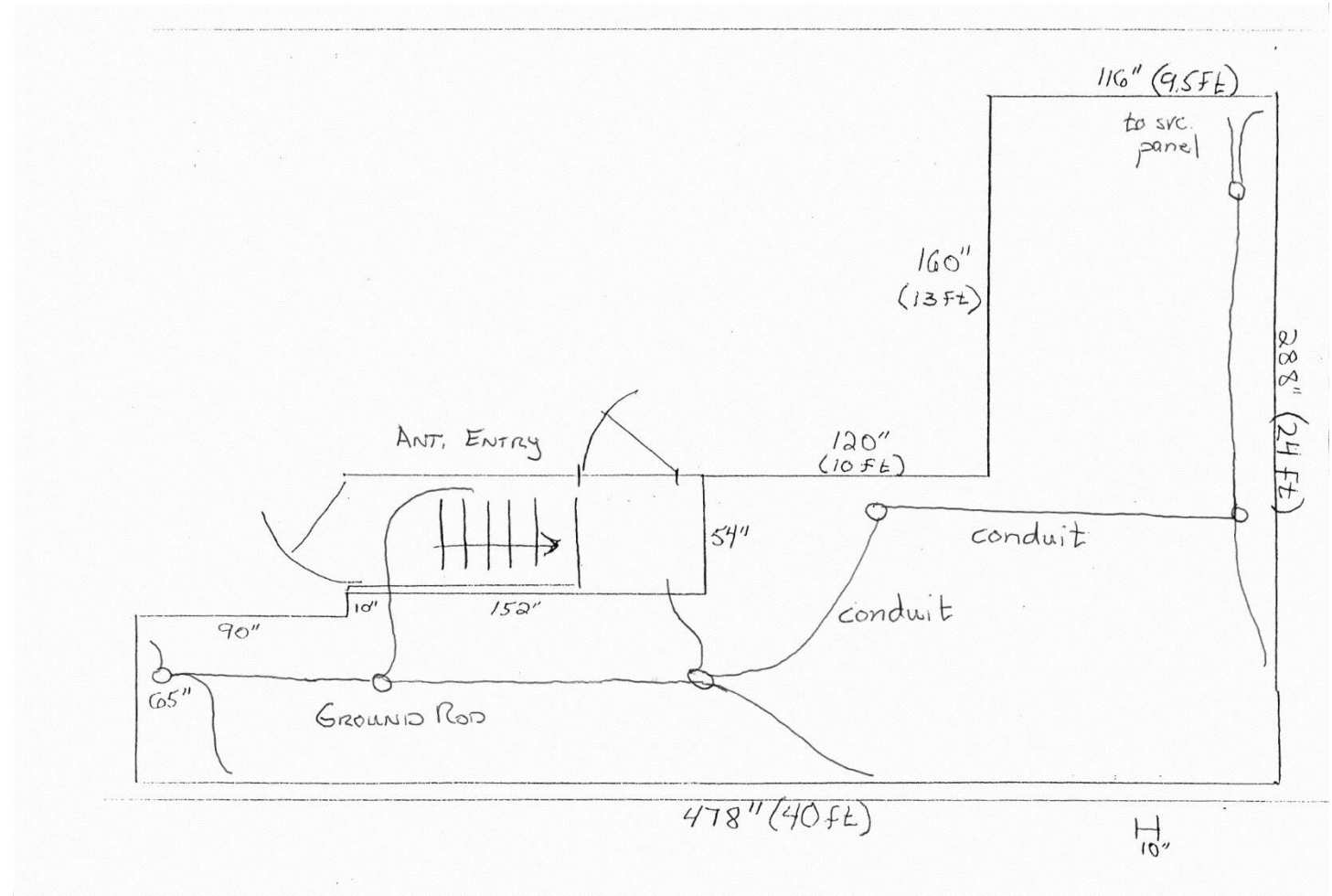
Year	80m CW	80m SSB	40m CW	40m SSB	20m CW	20m SSB	15m CW	15m SSB	10m CW	10m SSB
2009	N/A	34	N/A	27	N/A	23	N/A	16	N/A	0
2010	29	25	68	15	20	56	50	59	0	4

- **Borrowed TS-830s**
 - **Elecraft K2 Not Done**
- **CW 167 and 58 sections**
- **SSB 159 and 61 sections**
- **This will become a theme**

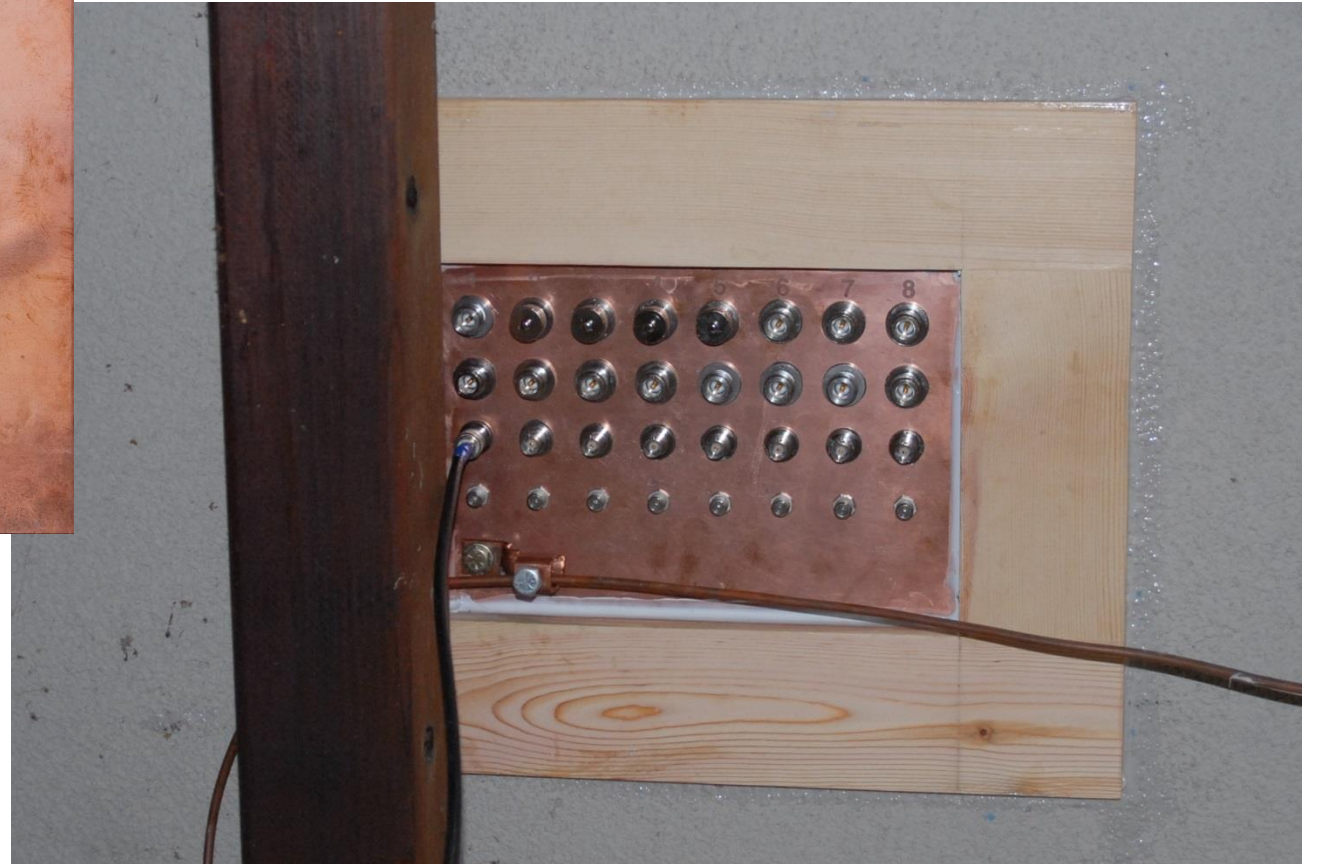
2011 – Try 4

- **Subtitled: Byron Goes Slightly Mad**
- **Features of a Big Station, In Miniature**
 - **Ground System**
 - **Resonant Antennas for Each Band**
- **Station to the Mini-Max**
 - **Stealing Shamelessly from Bob K6XX**

2011 –Earth Ground



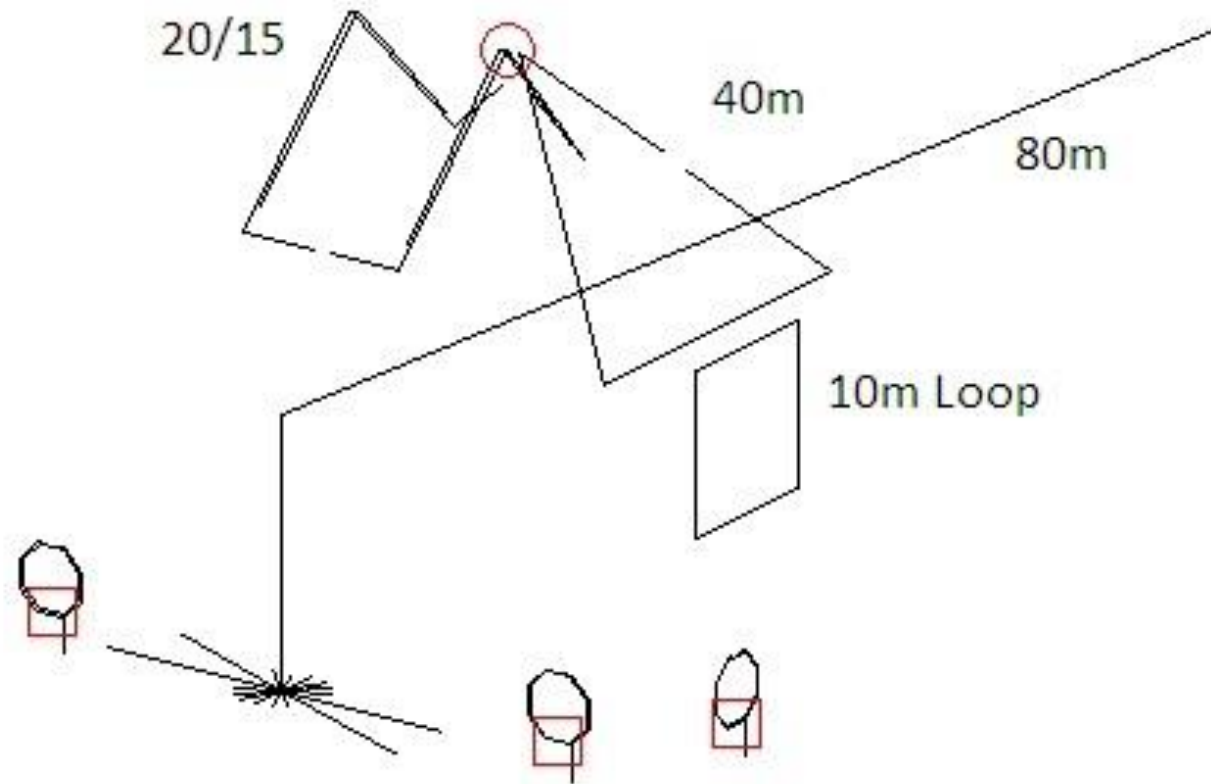
2011 – Antenna Port



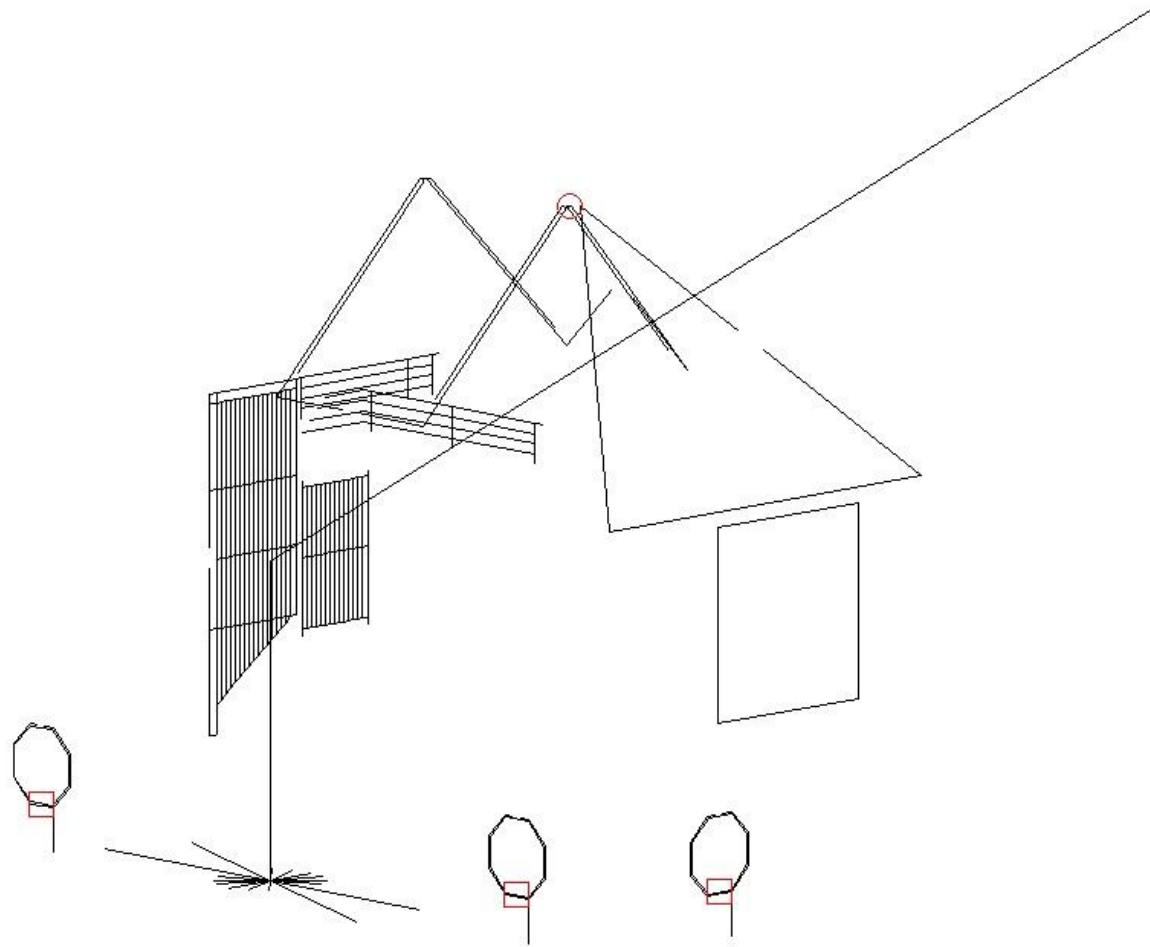
2011 – New Shack



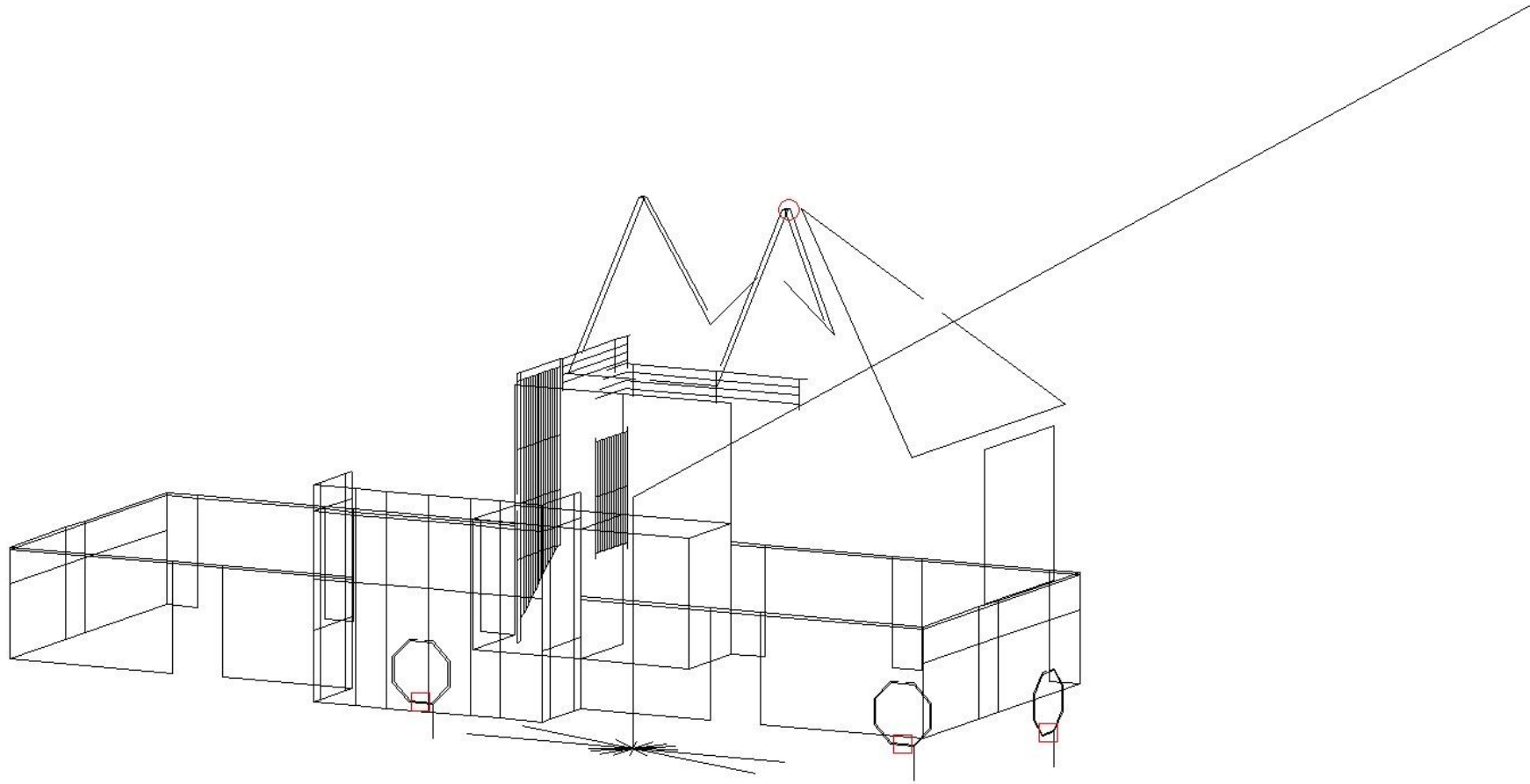
2011 – Antenna System



2011 – Bannister Ironwork



2011 – Building Stucco

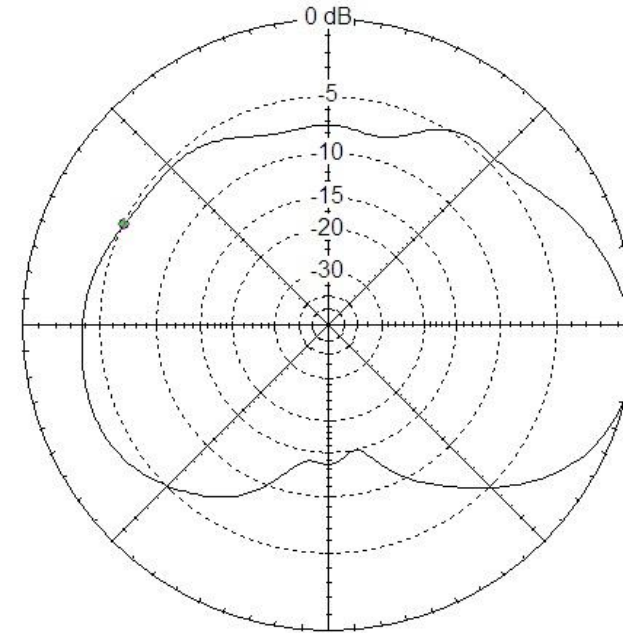


2011- 10m Model

- **0.49 dBi**
- **Towards K6XX**
- **Important Later**

Total Field

EZNEC+



28.308 MHz

Azimuth Plot

Elevation Angle 18.0 deg.

Outer Ring 5.59 dBi

Cursor Az

154.0 deg.

Gain

0.49 dBi

-5.11 dBmax

Slice Max Gain 5.59 dBi @ Az Angle = 351.0 deg.

Front/Back 4.07 dB

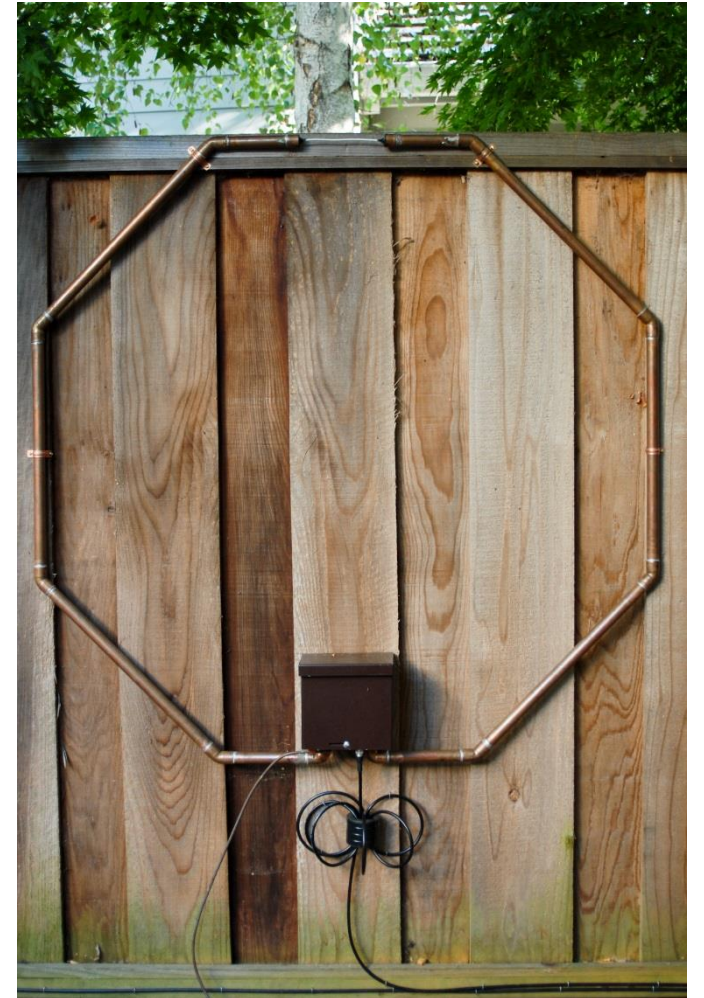
Beamwidth 65.9 deg.; -3dB @ 322.5, 28.4 deg.

Sidelobe Gain 2.17 dBi @ Az Angle = 200.0 deg.

Front/Sidelobe 3.42 dB

2011 – Try 4 Sweepstakes

- **I did not Finish In Time**
- **In 2012 I completed the work**
- **Added the RX Antennas**
 - **Help with Neighbors Compact Fluorescent Lights**



2012 – Try 5 Sweepstakes

Year	80m CW	80m SSB	40m CW	40m SSB	20m CW	20m SSB	15m CW	15m SSB	10m CW	10m SSB
2009	N/A	34	N/A	27	N/A	23	N/A	16	N/A	0
2010	29	25	68	15	20	56	50	59	0	4
2012	19	19	22	1	73	6	38	54	8	11
2013	23	70	75	1	62	4	89	45	6	13

- **2012 CW 160 with 68 Sections**
 - **2013 255 and 77**
- **2012 SSB 91 with 52 Sections**
 - **2013 133 and 51**

2012 – Lessons Learned

- **A Single Antenna System with Resonant Feed Points**
 - **Sounds Great – Same Performance**
- **Lots of Work with Minimal Benefits**
 - **Almost Entirely contained on my property is a big benefit**

2014 – Try 6

- **Started Planning in 2013**
- **Fewer Antennas**
 - **Match Feed Points As Necessary**
- **Completely Contained on Property**
- **Get 20m Above $\frac{1}{2}$ Wavelength High**
- **Minimize Visual Impact**

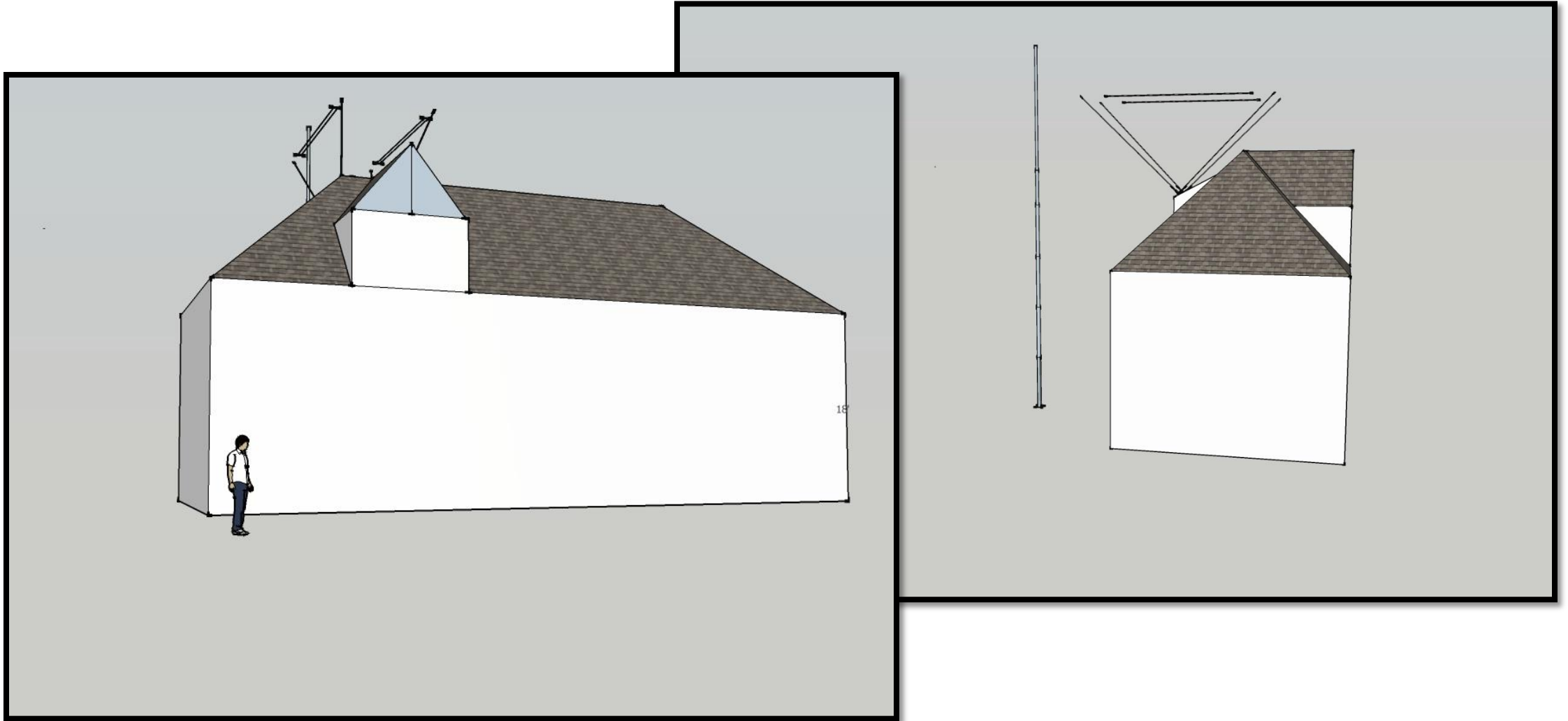
2014 – Antenna Plan

- **Driven Phased Delta Loops for 20-15-10**
 - **October 2012 RADCOM, “The Moxon Claw Revisited”**
 - **Profile Matches Roofline**
 - **Smaller Visual Profile Than a Hexbeam**
 - **Not Commonly Used – Will have Problems**
- **43 Foot Vertical for 80 and 40**
 - **Install Galvanized Wire Cloth Ground Screen**
- **Had to get HOA Approval**

2014 – HOA Notes

- **I don't Hide my Hobby**
 - **But work hard to unobtrusive**
 - **Neighbors notice the effort**
- **I volunteer a lot in the HOA**
- **Recently Re-Wrote our CCRs**
 - **Changes in California Law**
 - **I Volunteered for the Committee**
 - **Added PRB-1 Style Language**

2014 – HOA Model



2014 – Claw Staging



2014 – Claw Installed



2014 – Ground Cloth

- **My Poor Yard**
- **Based on Jim K9YC's Paper**
- **4' x 25' Fit Almost Exactly**
- **DX Engineering Fast Taper 43' Vertical**

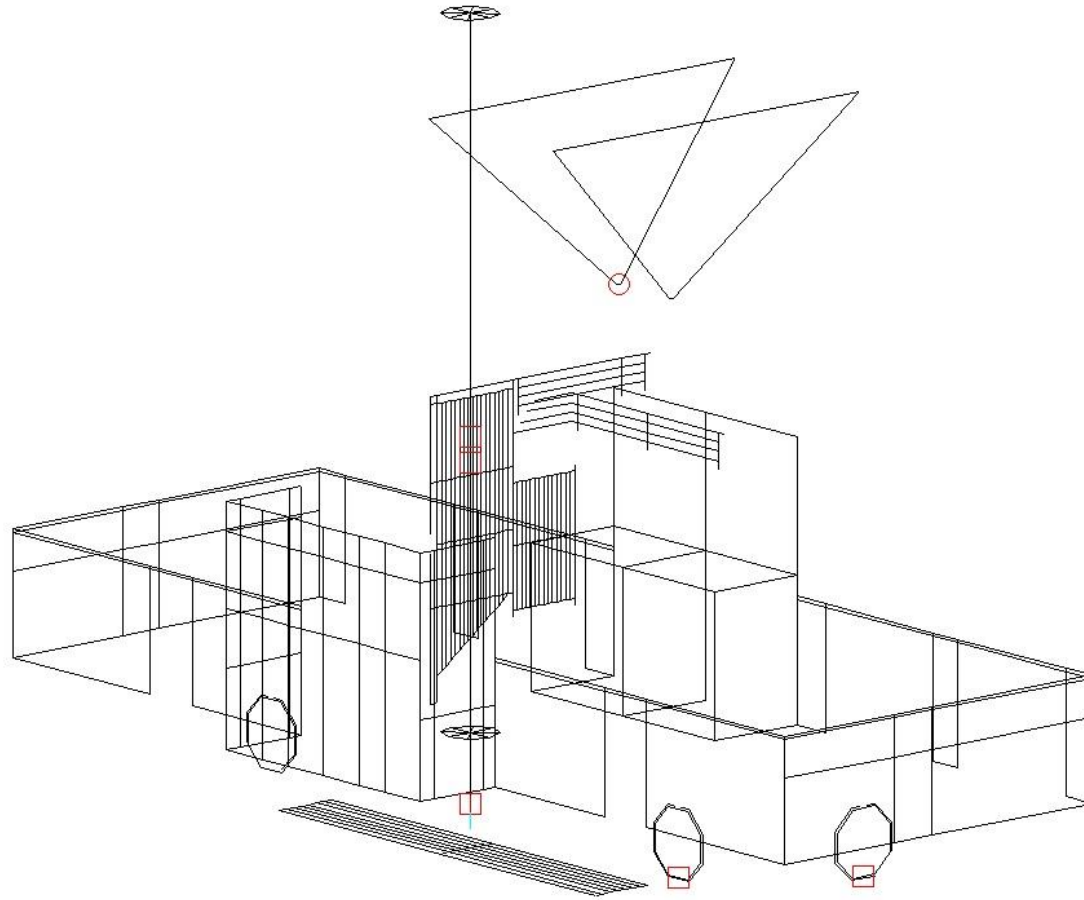


2014 – Will it Work?

- **Always a Question Given My Track Record**
 - **But Higher is Better**
- **Changed My Home Model to New Antennas**
- **Look at 10m vs. Old Loop**

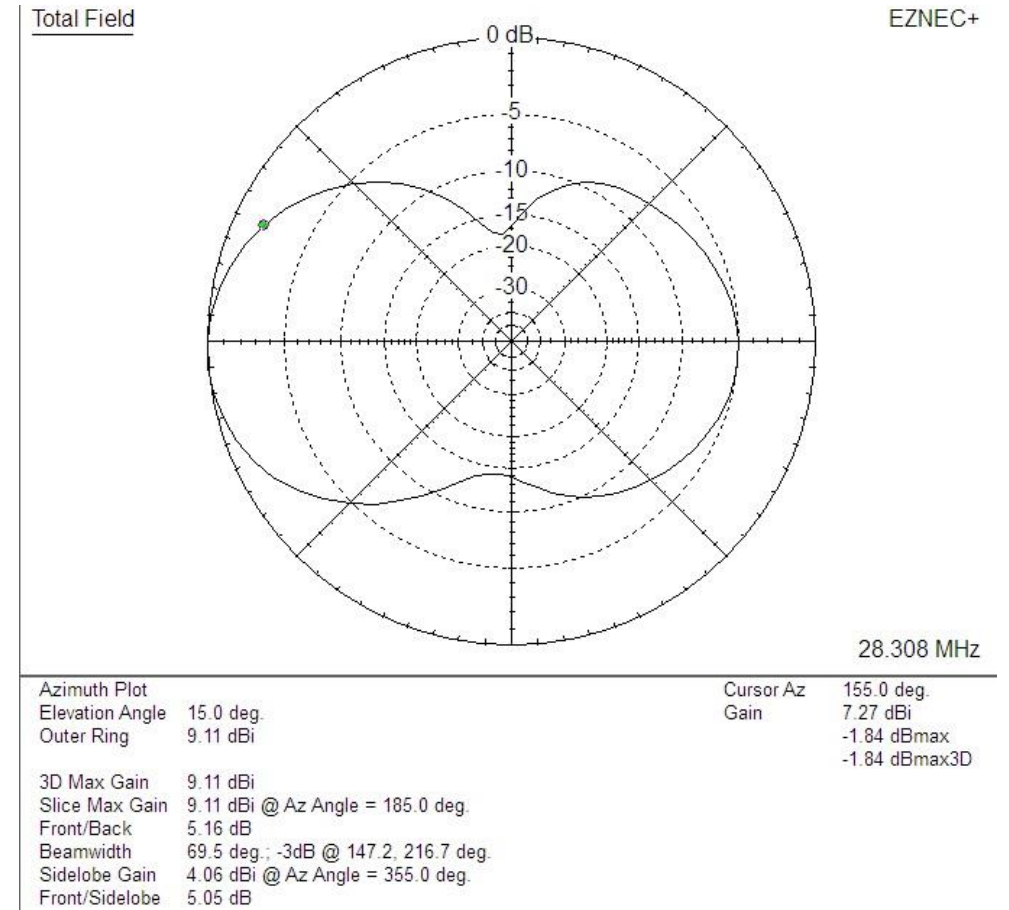
2014 – Complete Model

EZNEC+



2014 – 10m Model

- **7.27 dBi vs. 0.47**
- **On Air A/B Testing Even Better**
- **Just 1 Element in Use at the Time**
- **It is Just a Model**



Additional Lessons

- **Use Commercial Dipole Center Insulators**
- **I Can't Solder PL-259s, so I use N-Type and BNCs**
- **Times Microwave, Amphenol, Wireman**
- **A Paint Roller on an Extensible Pole Works Great Installing Wires on a Roof**

Thanks to My Patient Elmers

- **Donald AE6RF**
- **Jim K9YC**
- **Fred K6DGW**
- **Bob K6XX**
- **Jeff N6GQ**